INDEX

Abortion— Page
bacillus, characteristics of 9-11
disease—
infection with, through the bull 15
production of normal calves by cows infected with 11-12
record of experimental infection with, through teat 12-14
relation of bacillus to embryo 15-16
udder as channel of infection with 14-15
Absorption of Nutrients as Affected by the Number of Roots Supplied with the Nutrient (paper) 73-95
Acid, phosphoric—
absorption by roots 76-87
effect of organic substances on solubility in soils 264
Adrenalin, factor in increase of blood corpuscles 179-180
Agromyza femoralis. Syn. *Cerodonta femoralis*.
Alfalfa. See *Medicago sativa*.
Aluminum salts, effect on fixation of ammonia by soils 150, 153
Alway, F. J., and McDole, G. R. (paper): Relation of the Water-Retaining Capacity of a Soil to Its Hygroscopic Coefficient 27-71
Ammonia, in soil—
determination 144
factors influencing fixation 146-155
production 321-337
recovery 143-146, 188-200
Apple. See *Malus sylvestris*.
Atmometer—
measurement of solar-radiation intensity by 289-290
use in comparison of evaporation rate with transpiration rate of *Medicago sativa* ... 277-292
Avena sativa, host plant of *Cerodonta femoralis* 18

Bacteria—
cause of Citrus disease 1-8
soil—
influence of crop on 296-299
influence of season on 299-300
influence of water on 321-337
Bacterium citrarefaciens—
cultural characters 4-6
description 3
effect of desiccation on 7
effect of sunlight on 7
histology 3
identification 2-3
isolation 2-3
morphological characters 4
n. sp 3
temperature relations 7
Batrachedra rileyi. Syn. *Pectinophora gossypiella*.
Benzene compounds— Page
quantity required to kill insects 374-376
relation of temperature to—
lipoid solubility in 377-378
toxicity of 372-381
time required to kill insects by 374-376
Blood—
clotting, effect of muscular exercise on ... 173
dried—
effect on nitrifying power of soils 200-204
nitrification in soils 186-204
pigs'—
effect of heat of sun on 167-183
effect of muscular exercise on 167-183
morphology 131-140
specific gravity, effect of muscular exercise on 173
Bollworm—
pink. See *Pectinophora gossypiella*.
scavenger. See *Pyroderces rileyi*.
Briggs, L. J., and Shantz, H. L. (paper): Comparison of the Hourly Evaporation Rate of Atmometers and Free Water Surfaces with the Transpiration Rate of Medicago sativa 277-292
Busck, August (paper): The Pink Bollworm, Pectinophora gossypiella 343-370

Calcium—
salts, effect on ammonia fixation by soils .. 149
solubility in soils 153-154, 264
Calf, production by cow infected with abortion disease 11-12
Carbon bisulphid—
comparison with benzene derivatives for toxicity to insects 374-380
quantity required to kill insects 374-376
time required to kill insects 374-376
Carrero, J. O., and Gile, P. L. (paper): Absorption of Nutrients as Affected by the Number of Roots Supplied with the Nutrient 73-95
Cauliflower inflorescence—
origin in hybrid of *Zea ramosa* and *Zea tunicata* 393-394
significance in hybrid of *Zea ramosa* and *Zea tunicata* 393-394
Cerodonta femoralis—
control 24
distribution 17-18
habits 21-22
host plants 18
injury by 20-21
life history 18-20, 21-22
nomenclature 17
parasites 17-25
seasonal history 23-24

Page

Chalcis obscurata, parasite of *Pectinophora gossypiella* 359
Chelonus blackburnii, parasite of *Pectinophora gossypiella* 359
Citrus—
aurantium—
host plant of *Bacterium citrarefaciens* 2
composition of leaves at various stages of mottling 157–166
blast—
description 1–2
distribution 2
economic importance 7
decumana—
composition of leaves at various stages of mottling 163
limonum—
composition of leaves at various stages of mottling 160
host plant of *Bacterium citrarefaciens* 2
spp.—
bacterial disease of 1–8
relation of distribution of soil nitrogen to nutrition of 183–252
relation of transformation of soil nitrogen to nutrition of 183–252
Coefficient, hygroscopic, relation to water-retaining capacity of soil 27–71
Collins, G. N. (paper): Hybrids of Zea ramosa and Zea tunicata 383–395
Comparison of the Hourly Evaporation Rate of Atmometers and Free Water Surfaces with the Transpiration Rate of Medicago sativa (paper) 277–292
Composition of Citrus Leaves at Various Stages of Mottling (paper) 157–166
Cone, V. M. (paper)—
Flow Through Submerged Rectangular Orifices with Modified Contractions 97–114
The Venturi Flume 115–129
Corn. See *Zea mays*.
Corpuscles, red blood, effect of muscular exercise on 168–169, 177–178
Cotton. See *Gossypium* spp.
Cotton, W. E., and Schroeder, E. C. (paper): Some Facts about Abortion Disease 9–16
Cow, abortion disease of 9–16
Cromwell, R. O., and Wolf, F. A. (paper): Xylaria Rootrot of Apple 269–276
Crop, influence on soil bacteria 296–299
Curtis, R. S., and Wolf, F. A. (paper): Eupatorium ageratoides, the Cause of Trembles 397–404

Depressaria gossypiella. Syn. *Pectinophora gossypiella*.

Effect of Decomposing Organic Matter on the Solubility of Certain Inorganic Constituents of the Soil (paper) 253–268
Effects of Muscular Exercise and the Heat of the Sun on the Blood and Body Temperature of Normal Pigs (paper) 167–182
Errata IV
Eupatorium ageratoides, the Cause of Trembles (paper) 397–404

Page

Evaporation rate—
atmometer, comparison with transpiration rate of *Medicago sativa* 277–291
water, comparison with transpiration rate of *Medicago sativa* 277–291
Exercise, muscular—
effect on—
body temperature of normal pigs 167–183
clotting time of blood 173
hemoglobin in the blood 172
leucocytes in blood 170–172, 179
red blood corpuscles 168–169, 177–178
specific gravity of blood 173

Feces, nitrogen in 408–409
Fertilizer, nitrogenous—
effect on—
ammonia in furrow-irrigated soils 210
nitrates in furrow-irrigated soils 206
Fixation of Ammonia in Soils (paper) 141–155
Flow Through Submerged Rectangular Orifices with Modified Contractions (paper) ... 97–114
Flume, Venturi—
rectangular, construction 117–119
trapezoidal, uses 119, 126–128
V-notch 119, 121–126
Forbes, E. B., Mangels, C. E., and Morgan, L. E. (paper): A Study of Methods of Estimation of Metabolic Nitrogen 405–411
Form of Potato Disease Produced by Rhizoctonia (paper) 421–426
Fly, house. See *Musca domestica*.

Gelechia gossypiella. Syn. *Pectinophora gossypiella*.
Genus, new 346
Gile, P. L., and Carrero, J. O. (paper): Absorption of Nutrients as Affected by the Number of Roots Supplied with the Nutrient 73–95
Gossypium spp., food plants of *Pectinophora gossypiella* 358–359
Grapefruit. See *Citrus decumana*.
Greaves, J. E., Stewart, R., and Hirst, C. T. (paper): Influence of Crop, Season, and Water on the Bacterial Activities of the Soil 293–341
Gypsum, effect on solubility of soil minerals .. 264

Hemoglobin, effect of muscular exercise on .. 172
Hirst, C. T., Greaves, J. E., and Stewart, R. (paper): Influence of Crop, Season, and Water on the Bacterial Activities of the Soil 293–341
Housefly. See *Musca domestica*.
Hybrids of Zea ramosa and Zea tunicata (paper) 383–395
Hygroscopic coefficient, relation to water-retaining capacity of soil 27–71

Influence of Crop, Season, and Water on the Bacterial Activities of the Soil (paper) ... 293–341
Insects, toxicity of benzene derivatives to. 371–381
Iron—
absorption by roots 85–87
effect of organic substances on solubility in soils 264

Iron—Continued. Page
salts, effect on the fixation of ammonia by soils..... 150
Irrigation—
basin, effect on distribution of nitrates in soils..... 242-243
furrow, effect on distribution of nitric nitrogen in soils..... 204-234
overhead, effect on distribution of nitrates in soils..... 239-242

Jensen, C. A. (paper)—
Composition of Citrus Leaves at Various Stages of Mottling..... 157-166
Effect of Decomposing Organic Matter on the Solubility of Certain Inorganic Constituents of the Soil..... 253-268

Leaf, Citrus, composition at various stages of mottling..... 157-166
Lee, H. A. (paper): A New Bacterial Citrus Disease..... 1-8
Lemon. See *Citrus limonum*.
Leucocytes—
effect of heat of sun on..... 174-175
effect of muscular exercise on..... 170-172, 179
Ligustrum aurea, leaves of, composition at various stages of mottling..... 163-164
Lime, effect on solubility of soil minerals.... 264
Lipoid solubility, relation to boiling point of benzene compounds..... 377-378

Magnesium—
effect of organic substances on solubility in soils..... 264
salts, effect on the fixation of ammonia by soils..... 149-155
Maize. See Zea.
Malus sylvestris—
host plant of *Xylaria* spp..... 269-276
Xylaria rootrot of..... 269-276
Mangels, C. E., et al. (paper): A Study of Methods of Estimation of Metabolic Nitrogen..... 405-411
Manure—
artificial, effect on solubility of inorganic soil minerals..... 259-260
effect of decomposition on solubility of inorganic constituents..... 253-268
green, effect on solubility of inorganic soil minerals..... 263-266
nitrification in soils..... 186-200
organic, effect on solubility of inorganic soil minerals..... 264
McBeth, I. G. (paper)—
Fixation of Ammonia in Soils..... 141-155
Relation of the Transformation and Distribution of Soil Nitrogen to the Nutrition of Citrus Plants..... 183-252
McDole, G. R., and Alway, F. J. (paper): Relation of the Water-Retaining Capacity of a Soil to Its Hygroscopic Coefficient..... 27-71
Medicago sativa—
influence of solar-radiation intensity on transpiration rate..... 284
influence of wind velocity on transpiration rate..... 284
Medicago sativa—Continued. Page
transpiration rate—
comparison with evaporation rate of atmometers..... 277-291
comparison with evaporation rate of water..... 277-291
weather relation to transpiration rate.... 277-281
Metabolism, of nitrogen, estimation of..... 405-411
Miner, wheat-sheath. See *Cerodonta femoralis*.
Mineral, soil, effect of decomposing organic matter on solubility of..... 253-268
Moisture, distribution in soil..... 47-55, 66-68
Moore, William (paper): Toxicity of Various Benzene Derivatives to Insects..... 371-381
Morgan, L. E., et al. (paper): A Study of Methods of Estimation of Metabolic Nitrogen..... 405-411
Morphology of Normal Pigs' Blood (paper). 131-140
Mottle-leaf, relation of nitrogen to..... 248-250
Mottling, composition of Citrus leaves at various stages of..... 157-166
Musca domestica, toxicity of benzene derivatives to..... 371-381

New Bacterial Citrus Disease, A (paper)..... 1-8
New Strain of Rhizoctonia solani on the Potato, A (paper)..... 413-419
Niter spots, formation in Citrus soils..... 235-239
Nitrate—
distribution in soils irrigated by overhead system..... 239-242
effect of rainfall on distribution in Citrus soils..... 244-248
in soils, recovery of nitrogen as..... 188-200
salts, effect on fixation of ammonia by soil. 153
Nitrification of organic substances..... 187
Nitrogen—
absorption by roots..... 75-79
distribution in basin-irrigated soils..... 242-243
in soils—
effect of furrow irrigation on distribution..... 204-235
effect on organic substances..... 186-200
influence of water on..... 306-337
recovery as ammonia..... 188-200
recovery as nitrates..... 188-200
relation of distribution to nutrition of Citrus plants..... 183-252
relation of transformation to nutrition of Citrus plants..... 183-252
metabolic, methods of estimation..... 405-411
relation to mottle-leaf..... 248-250
Nutrient, plant absorption by roots..... 73-95

Oats. See *Avena sativa*.
Orange. See *Citrus aurantium*.
Orifices, weir, flow through..... 97-114
Oryza sativa, growth in nutrient solutions.... 75-76, 77-90

Palmer, C. C. (paper)—
Effects of Muscular Exercise and the Heat of the Sun on the Blood and Body Temperature of Normal Pigs..... 167-183
Morphology of Normal Pigs' Blood..... 131-140
Parisierola emigrata, parasite of *Pectinophora gossypiella*..... 359-360
Pectinophora, description of genus..... 346-351

Pectinophora gossypiella— Page
characters ... 346
control ... 356–362
description ... 346–351
dissemination ... 358
food plants ... 358–359
identification ... 346–351, 362–366
life history ... 351–354
origin ... 345–349
parasites of ... 359–361
reaction to light ... 354–356
resemblance to *Pyroderces rileyi* ... 362
Pediculoides ventricosus, parasite of *Pectinophora gossypiella* ... 361
Phleum pratense, host plant of *Cerodonta femoralis* ... 18
Pig—
effect of heat of sun on temperature of ... 167–183
effect of muscular exercise on temperature of ... 167–183
morphology of blood ... 131–140
Pimpla hawaiensis, parasite of *Pectinophora gossypiella* ... 359
Pink Bollworm, The (paper) ... 343–370
Pink bollworm. See also *Pectinophora gossypiella*.
Plant—
absorption of nutrients by roots ... 73–95
"Pod corn." See *Zea tunicata*.
Potassium—
absorption by roots ... 83–84
salts, effect on the fixation of ammonia by soils ... 151
Potato. See *Solanum tuberosum*.
Poultry, use in control of *Pectinophora gossypiella* ... 361–362
Privet. See *Ligustrum aurea*.
Pyroderces rileyi—
description ... 362–366
resemblance to *Pectinophora gossypiella* ... 362–366

Rainfall, effect on the distribution of nitrates in Citrus soils ... 244–248
Ramsey, G. B. (paper): A Form of Potato Disease Produced by Rhizoctonia ... 421–426
Relation of the Transformation and Distribution of Soil Nitrogen to the Nutrition of Citrus Plants (paper) ... 183–252
Relation of Water-Retaining Capacity of a Soil to Its Hygroscopic Coefficient (paper) ... 27–71
Rhizoctonia—
solani—
occurrence on *Solanum tuberosum* ... 413–419
comparison with *Rhizoctonia crocorum* ... 418–419
spp., causal organisms of a disease of *Solanum tuberosum* ... 421–426
Rice. See *Oryza sativa*.
Root, absorption of nutrients by ... 73–95
Rootrot—
black, of *Malus sylvestris*. Syn. Xylaria rootrot.
Xylaria—
cultural characters ... 274–275
description ... 270–272
distribution ... 269–270
losses ... 270
Rootrot—Continued. Page
Xylaria—Continued.
occurrence on *Malus sylvestris* ... 269–276
pathogenicity ... 275–276
Rosenbaum, J., and Shapovalov, M. (paper): A New Strain of Rhizoctonia solani on the Potato ... 413–419

Scavenger bollworm. See *Pyroderces rileyi*.
Schroeder, E. C., and Cotton, W. E. (paper): Some Facts about Abortion Disease ... 9–16
Seamans, H. L. (paper): Wheat-Sheath Miner ... 17–25
Season, influence on soil bacteria ... 299–300
Shantz, H. L., and Briggs, L. J. (paper): Comparison of the Hourly Evaporation Rate of Atmometers and Free Water Surfaces with the Transpiration Rate of Medicago sativa ... 277–292
Shapovalov, M., and Rosenbaum, J. (paper): A New Strain of Rhizoctonia solani on the Potato ... 413–419
Sheep—
cause of trembles in ... 397–404
effect of *Eupatorium ageratoides* on ... 397–404
Snakeroot, white. See *Eupatorium ageratoides*.
Sodium—
absorption by roots ... 83–84
carbonate, effect on solubility of soil minerals ... 264
salts, effect on fixation of ammonia by soils ... 149–155
Soil—
bacteria. See Bacteria, soil.
Citrus, formation of niter spots in ... 235–239
determination of ammonia in ... 144
effect of decomposing organic matter on solubility of inorganic constituents ... 253–268
effect of organic matter on specific conductivity of ... 265
fixation of ammonia in ... 141–155
furrow-irrigated—
effect on distribution of nitric nitrogen ... 204–234
seasonal variation in nitrates in ... 206–212
production of ammonia in ... 321–337
recovery of ammonia from ... 143–146
semiarid, effect of dried blood on the nitrifying power ... 200–204
effect of salts on solubility of calcium in ... 153–154
effect of inorganic minerals on specific conductivity of ... 265
mineral, effect of decomposing organic matter on solubility of ... 253–268
moisture distribution ... 47–55
recovery of nitrogen as ammonia in ... 188–200
recovery of nitrogen as nitrates in ... 188–200
relation of moisture content to hygroscopic coefficient ... 35–66
water-retaining capacity, relation to hygroscopic coefficient ... 27–71
Solanum tuberosum—
host plant of *Rhizoctonia solani* ... 413–419
Rhizoctonia disease of ... 421–426
Some Facts about Abortion Disease (paper) ... 9–16
Species, new ... 3

Page

Stewart, R., Greaves, J. E., and Hirst, C. T. (paper): Influence of Crop, Season, and Water on the Bacterial Activities of the Soil 293-341
Stomatoceras perforvus, parasite of *Pectinophora gossypiella* 359
Study of Methods of Estimation of Metabolic Nitrogen, A (paper) 405-411
Sun—
  heat of—
    effect on leucocytes 174-175
    effect on temperature of normal pigs. 167-183
  radiation intensity, measurement by atmometer 289-290

Temperature—
  body—
    effect of heat of sun on 175-177
    effect of muscular exercise on 175-177
  effect on fixation of ammonia by soils 147-148
  effect on nitrifying power of semiarid soils. 200-204
  relation to liroid solubility of benzene compounds 377-378
  relation to toxicity of benzene compounds. 377
Time, effect on fixation of ammonia by soils. 147-148
Timothy. See *Phleum pratense*.
Toxicity of Various Benzene Derivatives to Insects (paper) 371-381
Trembles—
  cause 397-404
  symptoms 399-400
Transpiration rate of *Medicago sativa*—
  comparison with evaporation rate of atmometers 277-291
  comparison with evaporation rate of water 277-291
  influence of solar-radiation intensity on ... 284
  influence of wind velocity on 284
Triticum spp., host plants of *Cerodonta femoralis* 17-25

Venturi Flume, The (paper) 115-129
Venturi flume. See also Flume, Venturi.

Water—
  evaporation rate, comparison with transpiration rate of *Medicago sativa* 277-291
  influence on—
    ammonifying power of soil 321-337
    nitric nitrogen of soil 306-337
    nitrifying powers of soil 321-337
    soil bacteria 321-337
  retention by soil, relation to hygroscopic coefficient 27-71

Page

Weather, influence on transpiration rate of *Medicago sativa* 277-281
Weir, with submerged rectangular orifices—
  computation of discharges 110-113
  construction 99-102
  formula 109-113
  influence of arrangement on flow 105-106
  influence of size of box on flow 105-106
  standardization 102-109
Wheat. See *Triticum* spp.
Wheat-Sheath Miner (paper) 17-25
Wheat-sheath miner. See also *Cerodonta femoralis*.
Wind, influence of velocity on transpiration of *Medicago sativa* 284
Wolf, F. A., and Curtis, R. S. (paper): Eupatorium ageratoides, the Cause of Trembles 397-404
Wolf, F. A., and Cromwell, R. O. (paper): Xylaria Rootrot of Apple 269-276

Xylaria—
  hypoxylon, association with rootrot of *Malus sylvestris* 274
  polymorpha, association with rootrot of *Malus sylvestris* 274
  spp., causal organisms of rootrot of *Malus sylvestris* 273-274
Xylaria Rootrot of Apple (paper) 269-276

Zea—
  mays, growth in nutrient solution 76-77
  ramosa—
    description 385-386
    origin 383
    × *Zea tunicata*—
      cauliflower inflorescence in hybrid of. 393-395
      correlations between inflorescences of hybrid of 391-393
      description of hybrid of 388-389
      gametic composition of hybrid of ... 389-391
      hybrids of 383-395
    variations 386-388
  tunicata—
    description 383-396
    origin 383
    × *Zea ramosa*—
      cauliflower inflorescence in hybrid of. 393-395
      correlations between inflorescences of hybrid of 391-393
      description of hybrid of 388-389
      gametic composition of hybrid of 389-391
      hybrids of 383-395
    variations 386-388